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(54) CUBIC BORON NITRIDE SINTERED PRODUCT

(57)Abstract:

PURPOSE: To obtain the above sintered product which is used as a cutting tool, because of its high abrasion resistance and high resistance to breaking-off, by combining cubic BN, AlN, AlB₂, metal or alloy of Co and/or Ni as major components, a rare earth metal compound and a metal compound of high melting point and calcining the mixture.

CONSTITUTION: Starting materials corresponding to 10W80vol.% of cubic BN of less than 15 μ average particle size; 3W20vol.% of AlN, 1W5vol.% of AlB₂ and/or AlB₁₂; 1W5vol.% of TiB₂; 0.5W5vol.% of a rare earth metal compound mainly containing oxides and nitrides of Y and Yb, and their mutual solid solution, 0.1W2vol.% of metal or its alloy mainly containing Co and/or Ni; 7.5W80vol.% of Al₂O₃ of less than 1.0 μ average particle size in an amount corresponding to (0.5W0.956)/(0.5W0.044) volume ratio of Al₂O₃/the high melting metallic compound; and 3.75W40vol.% of high melting point metallic compound which is composed of at least one selected from carbides and nitrides of Ti, Zr, Hf, Ta, Nb or V, carbides of W and a solid solution containing the same, are mixed, crushed, formed, then sintered.